

Claims

- [c1] 1.A light-emitting device with compound substrate comprising:
a compound substrate comprising a high thermal conductive layer and a substrate disposed around the high thermal conductive layer;
an adhesive layer formed on the compound substrate;
and
a light-emitting stack layer formed on the adhesive layer.
- [c2] 2.The light-emitting device of claim 1 wherein the adhesive layer is a transparent adhesive layer.
- [c3] 3.The light-emitting device of claim 2 wherein the adhesive layer is a conductive transparent adhesive layer.
- [c4] 4.The light-emitting device of claim 2 wherein the adhesive layer is an insulating transparent adhesive layer.
- [c5] 5.The light-emitting device of claim 1 wherein the adhesive layer is an opaque adhesive layer.
- [c6] 6.The light-emitting device of claim 5 wherein the adhesive layer is a conductive opaque adhesive layer.

- [c7] 7.The light-emitting device of claim 5 wherein the adhesive layer is an insulating opaque adhesive layer.
- [c8] 8.The light-emitting device of claim 1 further comprising a first reaction layer between the compound substrate and the adhesive layer.
- [c9] 9.The light-emitting device of claim 1 further comprising a second reaction layer between the adhesive layer and the light-emitting stack layer.
- [c10] 10.The light-emitting device of claim 8 further comprising a metal reflecting layer between the compound substrate and the first reaction layer.
- [c11] 11.The light-emitting device of claim 9 further comprising a metal reflecting layer between the second reaction layer and the light-emitting stack layer.
- [c12] 12.The light-emitting device of claim 11 further comprising a transparent conductive layer between the metal reflecting layer and the light-emitting stack layer.
- [c13] 13.The light-emitting device of claim 1 wherein the adhesive layer is a metal adhesive layer.
- [c14] 14.The light-emitting device of claim 1 wherein the adhesive layer is a metal reflecting adhesive layer.

- [c15] 15.The light-emitting device of claim 1 further comprising a connection layer between the high thermal conductive layer and the substrate.
- [c16] 16.The light-emitting device of claim 1 wherein the high thermal conductive layer comprises at least one material selected from a material group consisting of Cu, Al, Au, Ag, W, and alloys of these metals.
- [c17] 17.The light-emitting device of claim 15 wherein the connection layer comprises at least one material selected from a material group consisting of indium tin oxide, GeAu, BeAu, Au, SiNx, SiO₂, Cu, Ti, and Pd.
- [c18] 18.The light-emitting device of claim 1 wherein the substrate comprises at least one material selected from a material group consisting of Si, GaAs, Ge, Al₂O₃, glass, InP, and GaP.
- [c19] 19.The light-emitting device of claim 2 wherein the transparent adhesive layer comprises at least one material selected from a material group consisting of PI, BCB, and PFCB.
- [c20] 20.The light-emitting device of claim 15 wherein the conductive transparent adhesive layer comprises at least one material selected from a material group consisting

of intrinsically conducting polymer and polymer doped with a conductive material.

- [c21] 21.The light-emitting device of claim 20 wherein the conductive material comprises at least one material selected from a material group consisting of indium tin oxide, cadmium tin oxide, antimony tin oxide, zinc oxide, zinc tin oxide, Au, and Ni/Au.
- [c22] 22.The light-emitting device of claim 13 wherein the metal adhesive layer comprises at least one material selected from a material group consisting of In, Sn, Al, Au, Pt, Zn, Ge, Ag, Ti, Pb, Pd, Cu, and alloys of these metals.
- [c23] 23.The light-emitting device of claim 14 wherein the metal reflecting adhesive layer comprises at least one material selected from a material group consisting of In, Sn, Al, Au, Pt, Zn, Ge, Ag, Ti, Pb, Pd, Cu, and alloys of these metals.
- [c24] 24.The light-emitting device of claim 1 wherein the light-emitting stack layer comprises at least one material selected from a material group consisting of AlGaInP, AlInGaN, and AlGaAs series.
- [c25] 25.The light-emitting device of claim 8 wherein the first reaction layer comprises at least one material selected from a material group consisting of SiNx, Ti, and Cr.

[c26] 26. The light-emitting device of claim 9 wherein the second reaction layer comprises at least one material selected from a material group consisting of SiNx, Ti, and Cr.